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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/782,702	02/13/2001	Raymond F. Cracauer	FORS-06111	4955

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EXAMINER

FORMAN, BETTY J

ART UNIT	PAPER NUMBER
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1634

DATE MAILED: 05/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/782,702

Applicant(s)

CRACAUER, RAYMOND F.

Examiner

BJ Forman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 22-25 and 36-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 22-25 and 36-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 15/Aug 02
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-16 and 22-25, filed 15 August 2002 is acknowledged. Applicant's canceling of Claims 17-21 and 26-35 and addition of Claims 36-44 are acknowledged.

Claims 1-16, 22-25 and 36-44 are discussed below.

Priority

2. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 as follows:

An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification of in an application data sheet (37 CFR 1.78(a)(2) and (a)(5)). The specific reference to any prior nonprovisional application must include the relationship (i.e., continuation, divisional, or continuation-in-part) between the applications except when the reference is to a prior application of a CPA assigned the same application number.

Specification

3. The disclosure is objected to because the specification does not contain a Brief Description of the Drawings as required by 37 C.F.R. 1.74.

608.01(f) Brief Description of Drawings

37 CFR 1.74. Reference to drawings.

When there are drawings, there shall be a brief description of the several views of the drawings and the detailed description of the invention shall refer to the different views by specifying the numbers of the figures, and to the different parts by use of reference letters or numerals (preferably the latter). The Office of Initial Patent Examination (OIPE) will review the specification, including the brief description, to determine whether all of the figures of drawings described in the specification are present. If the specification describes a figure which is not present in the drawings, the application will be treated as an application filed without all figures of drawings in accordance with MPEP § 601.01(g), unless the application lacks any drawings, in which case the application will be treated as an application filed without drawings in accordance with MPEP § 601.01(f). The examiner should see to it that the figures are correctly described in the brief description of the drawing, that all section lines used are referred to, and that all needed section lines are used. If a figure contains several parts, for example, figure 1A, 1B, and 1C, the figure may be described as figure 1. If only figure 1A is described in the brief description, the examiner should object to the brief description, and require applicant to either add a brief description of figure 1B and 1C or describe the figure as "figure 1." The specification must contain or be amended to contain proper reference to the existence of drawings executed in color as required by 37 CFR 1.84.

Appropriate correction is required.

Information Disclosure Statement

3. The Information Disclosure statement filed 15 August 2002 contains 10 pages. Pages 1 through 5 list references of interest cited in the specification and/or identified during a search by World Patent Services, Inc. Pages 6-8 consist of 3 of 1449 forms properly listing references of interest. Pages 9-10 consist of an International Search Report. The references

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listed on the 1449 have been reviewed and considered. And the International Search Report has been reviewed. However, any references listed on pages 1-5 or the International Search Report that are not listed on the 1440 forms have not been reviewed or considered.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-16, 22-25, 36-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over McLuen et al (WO 99/65602, published 23 December 1999) in view of Zuckermann et al (WO 98/10857, published 19 March 1998).

Regarding Claim 1, McLuen et al teach a cartridge comprising a plurality of receiving holes configured to hold nucleic acid synthesis columns, wherein the cartridge is further configured to receive the columns forming a seal between the holes and columns (page 12, lines 4-23) which clearly suggests that a seal between the holes and columns are required. McLuen et al do not specifically teach that the cartridge is configured to receive one or more o-rings to provide the seal between the columns and holes. However, cartridges configured to receive o-rings thereby providing a seal between holes and columns were well known in the art at the time the claimed invention was made as taught by Zuckermann et al.

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Zuckermann et al teach a similar cartridge comprising a plurality of receiving holes configured to hold nucleic acid synthesis columns, wherein the cartridge is further configured to receive an o-ring (i.e. annular sealing means) whereby a seal is formed between the holes and columns (page 3, lines 9-29). Furthermore, they teach that the o-ring facilitates sealing between the holes and column (page 11, lines 19-24).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the cartridge configuration of McLuen et al by configuring the cartridge to receive o-rings between the holes and columns thereby facilitating a tight seal between the holes and columns as taught by Zuckermann et al (page 7, lines 1-10 and page 11, lines 9-29). One of ordinary skill in the art would have been motivated to facilitate the tight seal based on the teaching of McLuen et al wherein a tight seal is desired (page 7, lines 7-10 and page 12, lines 19-23).

Regarding Claim 2, McLuen et al teach a nucleic acid synthesis system containing a cartridge as defined in Claim 1 (page 1, lines 5-7 and Fig. 1).

Regarding Claim 3, McLuen et al teach the cartridge wherein said plurality of holes comprises 12 or more (page 7, lines 11-17 and Fig. 3).

Regarding Claim 4, McLuen et al teach the cartridge wherein said plurality of holes comprises 48 or more (page 7, lines 11-17 and Fig. 3).

Regarding Claim 5, McLuen et al teach the cartridge is configured to receive the gasket i.e. the cartridge is configured to such that "support" (Fig. 6 #660) fits within the receiving hole to form a tight seal. McLuen et al do not specifically teach that the gasket provides one or more o-rings. However, gaskets providing o-rings and thereby providing a seal between holes and columns were well known in the art at the time the claimed invention was made as taught by Zuckermann et al.

Zuckermann et al teach the similar cartridge wherein the cartridge is further configured to receive a gasket (i.e. mating notch, Fig. 3, #152) and o-ring (i.e. annular sealing

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means, Fig. 3, #150) whereby a seal is formed between the holes and columns (page 3, lines 9-29). Furthermore, they teach that the gasket/ o-ring (mating notch/annular sealing means) facilitate sealing between the holes and column (page 11, lines 19-24).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the cartridge configuration of McLuen et al by configuring the cartridge to receive the gasket and o-rings between the holes and columns thereby facilitating a tight seal between the holes and columns as taught by Zuckermann et al (page 11, lines 9-29). One of ordinary skill in the art would have been motivated to facilitate the tight seal based on the teaching of McLuen et al wherein a tight seal is desired (page 12, lines 19-23).

Regarding Claim 6, McLuen et al teach the cartridge wherein the plurality of holes comprise an upper portion and a lower portion wherein the lower portion comprises a first diameter and the upper portion comprises a diameter larger than the first diameter i.e. the receiving holes have a "precise diameter" corresponding to the exterior dimension of the vials (page 7, lines 7-10) which have an upper diameter that is larger than the lower diameter (Fig. 6).

Regarding Claim 7, McLuen et al teach the cartridge wherein the plurality of holes comprise an upper portion with a first diameter and a middle portion with a second diameter and a lower portion with a third diameter wherein the second diameter is larger than the first diameter and the first diameter is larger than the third diameter i.e. the receiving holes have a "precise diameter" corresponding to the exterior dimension of the vials (page 7, lines 7-10) which have an upper diameter that is larger than the lower diameter (Fig. 6).

Regarding Claim 8, McLuen et al teach the cartridge wherein the middle portion is configured to tightly seal with the column (page 7, lines 7-10) but they do not teach the cartridge is configured to hold an o-ring. However, as stated above, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the cartridge of McLuen et al by configuring the cartridge to hold an o-ring to thereby facilitate

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providing a tight seal between the columns and holes as taught by Zuckermann et al based on the fact that McLuen et al desires a tight seal (page 7, lines 7-10 and page 12, lines 19-23).

Regarding Claim 9, McLuen et al teach a system comprising an open system nucleic acid synthesis cartridge comprising at least one receiving hole configured to receive a nucleic acid synthesis column. McLuen et al do not specifically teach that the cartridge is configured to receive one or more o-rings to provide the seal between the columns and holes. However, cartridges configured to receive o-rings thereby providing a seal between holes and columns were well known in the art at the time the claimed invention was made as taught by Zuckermann et al.

Zuckermann et al teach a similar cartridge comprising a plurality of receiving holes configured to hold nucleic acid synthesis columns, wherein the cartridge is further configured to receive an o-ring (i.e. annular sealing means) whereby a seal is formed between the holes and columns (page 3, lines 9-29). Furthermore, they teach that the o-ring facilitates sealing between the holes and column (page 11, lines 19-24).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the cartridge configuration of McLuen et al by configuring the cartridge to receive o-rings between the holes and columns thereby facilitating a tight seal between the holes and columns as taught by Zuckermann et al (page 7, lines 1-10 and page 11, lines 9-29). One of ordinary skill in the art would have been motivated to facilitate the tight seal based on the teaching of McLuen et al wherein a tight seal is desired (page 7, lines 7-10 and page 12, lines 19-23).

Regarding Claim 10, McLuen et al teach the system wherein the cartridge is comprises a rotary cartridge (page 5, lines 5-14 and page 6, line 24-page 7, line 17).

Regarding Claims 11-12, McLuen et al teach the system wherein a tight seal between the receiving hole and column is desired (page 7, lines 7-10 and page 12, lines 19-23) but they do not teach the cartridge is configured to hold an o-ring. However, as stated above, it would

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have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the cartridge of McLuen et al by configuring the cartridge to hold an o-ring to thereby facilitate providing a tight seal between the columns and holes as taught by Zuckermann et al based on the fact that McLuen et al desires a tight seal (page 7, lines 7-10 and page 12, lines 19-23).

Regarding Claim 13, McLuen et al teach the cartridge comprises a plurality of receiving holes (page 7, lines 11-17 and Fig. 3).

Regarding Claim 14, McLuen et al teach that a tight seal between the receiving holes and column is desired (page 7, lines 7-10 and page 12, lines 19-23) but they do not teach the cartridge is configured to hold an o-ring. However, as stated above, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the cartridge of McLuen et al by configuring the cartridge to hold an o-ring to thereby facilitate providing a tight seal between the columns and holes as taught by Zuckermann et al based on the fact that McLuen et al desires a tight seal (page 7, lines 7-10 and page 12, lines 19-23).

Regarding Claim 15, McLuen et al teach the cartridge wherein said plurality of holes comprises 12 or more (page 7, lines 11-17 and Fig. 3).

Regarding Claim 16, McLuen et al teach the cartridge wherein said plurality of holes comprises 48 or more (page 7, lines 11-17 and Fig. 3).

Regarding Claim 22, McLuen et al teach the synthesis system of Claim 2 further comprising a reagent dispensing station configured to house one or more reagent reservoirs such that reagents can be delivered to the cartridge (page 5, lines 5-31 and Fig. 1).

Regarding Claim 23, McLuen et al teach the synthesis system wherein said dispensing station comprises a ventilation tube configured to remove gaseous emissions from the dispensing station (page 10, lines 6-13).

Regarding Claim 24, McLuen et al teach the system wherein the dispensing station comprises an enclosure i.e. reservoirs within the base (page 5, lines 5-6 and 15-16).

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Regarding Claim 25, McLean et al teach the system wherein the dispensing station comprises a viewing window configured to allow visual inspection of the reagent reservoirs (page 9, line 30-page 10, line 5).

Regarding Claim 36, McLuen et al teach the system of Claim 11 further comprising a synthesis and purge component in a pressurizable chamber wherein said seal between the receiving hole and column is configured to maintain pressure in the chamber during purging (page 10, lines 18-23).

Regarding Claim 37, McLuen et al teach the cartridge comprises a plurality of receiving holes (page 7, lines 11-17 and Fig. 3).

Regarding Claim 38, McLuen et al teach that a tight seal between the receiving holes and column is desired (page 7, lines 7-10 and page 12, lines 19-23) but they do not teach the cartridge is configured to hold an o-ring. However, as stated above, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the cartridge of McLuen et al by configuring the cartridge to hold an o-ring to thereby facilitate providing a tight seal between the columns and holes as taught by Zuckermann et al based on the fact that McLuen et al desires a tight seal (page 7, lines 7-10 and page 12, lines 19-23).

Regarding Claim 39, McLuen et al teach the cartridge wherein said plurality of holes comprises 12 or more (page 7, lines 11-17 and Fig. 3).

Regarding Claim 40, McLuen et al teach the cartridge wherein said plurality of holes comprises 48 or more (page 7, lines 11-17 and Fig. 3).

Regarding Claim 41, McLuen et al teach the synthesis system of Claim 2 further comprising a reagent dispensing station configured to house one or more reagent reservoirs such that reagents can be delivered to the cartridge (page 5, lines 5-31 and Fig. 1).

Regarding Claim 42, McLuen et al teach the synthesis system wherein said dispensing station comprises a ventilation tube configured to remove gaseous emissions from the dispensing station (page 10, lines 6-13).


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Regarding Claim 43, McLuen et al teach the system wherein the dispensing station comprises an enclosure i.e. reservoirs within the base (page 5, lines 5-6 and 15-16).

Regarding Claim 44, McLean et al teach the system wherein the dispensing station comprises a viewing window configured to allow visual inspection of the reagent reservoirs (page 9, line 30-page 10, line 5)

Conclusion

6. No claim is allowed.
7. The Examiner of this Application has changed. Please address correspondence to Examiner: BJ Forman, Art Unit: 1634.
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (703) 306-5878. The examiner can normally be reached on 6:30 TO 4:00.
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (703) 308-1152. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-8724 for After Final communications.
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.


BJ Forman, Ph.D.
Patent Examiner
Art Unit: 1634
May 1, 2003